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REMARKS

I. Introduction

Applicant appreciates the Examiner for renumbering mis-numbered claims 27 and 28 to claims 26 and 27, respectively.

Further, it is noted that the Examiner has not provided an initialed copy of the Information Disclosure Statement filed on November 25, 2003. A copy of the IDS and stamped-post card showing receipt by the PTO is attached hereto for the Examiner's reference. It is respectfully requested that the Examiner provide Applicant an initialed copy of the IDS with the next Office Action indicating that the prior art references cited therein have been considered and made of record.

For the reasons set forth below, Applicant respectfully submits that all pending claims are patentable over the cited prior art references.

II. Double Patenting

Claims 13-27 are rejected under the judicially created doctrine of obviousness-type double patent as being unpatentable over claims 1-11 of U.S. Patent No. 6,665,528 to McNamara. In response to the non-statutory-type double patenting, Applicant is filing concurrently herewith a terminal disclaimer. It is respectfully submitted that the pending double patenting rejection is moot in view of the terminal disclaimer filed thereof.

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III. The Rejection Of Claims 1 and 7 Under 35 U.S.C. § 103

Claims 13-15, 17, 20-24 and 26-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over USP No. 5,280,648 to Dobrovolny in view of USP No. 5,678,226 to Li, and further in view of JP-411205043 to Irie and USP No. 6,466,775 to Franca-Neto. Applicant respectfully traverses this rejection for at least the following reasons.

Claim 13 recites in-part a *dual band* mixer, comprising a *first local oscillator* input signal and a *second local oscillator* input signal, wherein drains of a first and second transistors are *coupled* to a common node, and the first and second radio frequency input signals operate at different radio frequency bands.

A. Dobrovolny Does Not Disclose The Alleged Limitations

As a preliminary matter, the Examiner is respectfully reminded that there are various types of mixers including dual band mixers, double-balanced mixers, triple-balanced mixers, quadrature IF mixers and image reject mixers, each of which is structurally and functionally distinct.

Initially, Applicant notes that the double-balanced wide band RF mixer of Dobrovolny does not include two transistors arranged to mix signals at different radio frequencies. This is evidenced by the fact that the MESFETS 22/56 disclosed in Dobrovolny act as switches 22'/26' to alternately connect the free terminals of windings 16/17 to ground for switching the polarity of the same *symmetrical* RF signal at the *same frequency* to obtain the mixer output signal. This is expressly disclosed at col. 3, lines 20-30. Accordingly, coupled with such structural difference,

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it is respectfully submitted that Dobrovolny does not disclose or suggest a dual band mixer, as recited by claim 13.

In addition, Applicant respectfully submits that the MESFETS 22/26 do not receive two oscillator inputs, because the switches 22'/26' are closed under control of the same local oscillator signal provided by the local oscillator 40 (see, Figs. 1 and 2 and col. 3, lines 20-24). Accordingly, it is respectfully submitted that Dobrovolny does not disclose or suggest a first local oscillator input signal and a second local oscillator input signal (let alone an interconnection circuitry that utilizes these oscillator input signals), as recited by claim 13.

B. Modification of Dobrovolny Using Li

I. Dobrovolny and Li Do Not Provide The Requisite Motivation

Applicant would initially stress the requisite motivation to support the ultimate legal conclusion of obviousness under 35 U.S.C. §103 is not an abstract concept but must stem from the applied prior art as a whole and have realistically impelled one having ordinary skill in the art to modify a reference or combine references to arrive at a claimed invention. *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989). It has been judicially held that a *generalization* does *not* establish the requisite motivation to modify a specific reference in a specific manner to arrive at a specifically claimed invention. *In re Deuel*, 51 F.3d 1552, 34 USPQ2d 1210 (Fed. Cir. 1995). Rather, the PTO is required to point out wherein the prior art suggests modifying a reference or combining references to arrive at a specifically claimed invention. *In re Rouffet*, 149 F.3d 1350, 47 USPQ2d 1543 (Fed. Cir. 1998). In this respect, Applicant would further

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stress that the *mere identification* of claim features in disparate references does not establish the requisite realistic motivation to support the ultimate legal conclusion of obviousness under 35 U.S.C. §103. *Grain Processing Corp. v. American-Maize Products Co.*, 840 F.2d 902, 5 USPQ2d 1788 (Fed. Cir. 1988).

The PTO has offered *no* explanation *why* one having ordinary skill in the art would somehow have been lured to go against the express objectives given by Dobrovlny to modify the node thereof in the manner recited by the pending claims. *In re Rouffet*, supra.; *In re Mayne*, supra. Thus, it is clear that the PTO has not established a *prima facie* basis to deny patentability to the claimed invention under 35 U.S.C. §103.

II. Dobrovlny Teaches Away From The Claimed Invention

It is noted that the Examiner acknowledges that Dobrovlny does not disclose a common node, and the node disposed on the left side of the capacitor C4 of Li is relied upon to cure this defect.

However, even assuming *arguendo* that Li discloses a node, Applicant respectfully submits that the alleged common node of Li is not even coupled to transistors in the manner recited in claim 13. Specifically, claim 13 recites that drains of the first and second transistors are coupled to the common node. In contrast, the node disposed on the left side of the capacitor C4 is, at best, coupled to a single transistor; namely transistor 12. Accordingly, such combination still fails to arrive at the claimed invention, because the alleged common node of Li

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is not coupled to two transistors, and Li certainly does not provide any suggestion as to how such node can be coupled to the alleged first and second transistors disclosed in Dobrovolny.

Absent these teachings, it is respectfully submitted that the combination of Dobrovolny and Li does not disclose or suggest "drains of the first and second transistors are coupled to the common node," as recited by claim 13.

In fact, Dobrovolny specifically couples the drain of the MESFETS 22/26 to the free terminal windings 16/17 for switching the polarity of the RF signal. Hence, the Examiner's proposed modification using Li is *inconsistent* with Dobrovolny's express objective (i.e., switching the polarity of RF signal), because doing so would render a disconnection between the drains of the MESFETS 22/26 and free windings 16/17.

It is clearly improper for the pending Office Action to simply *pick* and *choose* selected elements from various references to reconstruct the claimed invention. Thus, it is respectfully submitted that not only is there no disclosed need or desire for such modification as alleged by the pending rejection, doing so would effectively destroy the principle of Dobrovolny for its intended purpose (*see* M.P.E.P. § 2141.02 under the section entitled "Prior Art Must Be Considered in its Entirety, Including Disclosures that Teach Away from the Claims; and M.P.E.P. § 2143.01 under the section entitled "Proposed Modification Cannot Render Prior Art Unsatisfactory for its Intended Purpose"), thereby underscoring the *nonobviousness* of the claimed invention *as a whole*. *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992); *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); *In re Schulpen*, 390 F.2d 1009, 157 USPQ 52 (CCPA 1968).

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III. The Motivation Proposed By The Examiner Is Defective

Furthermore, the purported motivation (i.e., "...so that circuit design can be simplified") offered by the Examiner is defective. The Office Action attempts to overcome the deficiency in Dobrovlny by asserting an opinion that one of ordinary skill in the art would have found it obvious to simplify the double-balanced wide band RF mixer.

However, there is no suggestion or support in the prior art that the common node would act to simplify a circuit. It is respectfully submitted that modifying the double-balanced wide band RF mixer of Dobrovlny by adding the alleged common node as disclosed in Li would actually make the double-balanced wide band RF more complex than simpler, as new electrical connections would be introduced. In addition, it should be noted that the alleged motivation is not even required in the method of Dobrovlny because the double-balanced wide band RF mixer disclosed therein already has the means by which to simplify the circuit design (e.g., as shown by Fig. 2, a simplified schematic diagram).

Thus, there is no disclosed need, desire or purpose for making the double-balanced wide band RF mixer any more simplistic than already disclosed by Dobrovlny. Accordingly, the alleged motivation for making the proposed modification is factually nonexistent. At best, Dobrovlny arguably only shows an IF output terminal 25 without demonstrating how the windings 16/17, drains of the MESFETS 22/26 and output of the transformer 11 can be connected to the IF output terminal 25.

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C. Modification of Dobrovolny and Li Using Irie

The Examiner admits that the device rendered by the combination of Dobrovolny and Li cannot be operated at a second radio frequency that has a different radio frequency band than the alleged first radio frequency. Irie is relied upon to cure this deficiency.

Even assuming further that Irie can be applied to the imaginary device rendered by the combination of Dobrovolny and Li, it has been repeatedly held by the Honorable Board of Patent Appeals and Interferences that when an Examiner relies upon a foreign language document, the Examiner *must* provide an English language translation, and not merely an Abstract. The Examiner cannot simply rely upon the Abstract (in this case, "Solution") without citing the relevancy to the actual disclosure. *Ex parte Bonfils*, 64 USPQ2d 1456 (BPAI 2002); *Ex parte Gavin*, 62 USPQ2d 1680 (BPAI 2001); *Ex parte Jones*, 62 USPQ2d 1206 (BPAI 2001). Indeed, as the actually relied upon document is not in the English language, Applicant is denied procedural due process of law because the Examiner has failed to set forth the rejection with the requisite clarity such that Applicant can provide an appropriate response. *In re Mullin*, 481 F.2d 1333, 179 USPQ 97 (CCPA 1973).

Most importantly, the alleged motivation (i.e., "... in order to suppress an interfering wave by an image frequency") as asserted by the Examiner is completely irrelevant and unrelated to the double-balanced wide band RF mixer of Dobrovolny. As is apparent, Dobrovolny has provided *no* discussion regarding an interfering wave, let alone that method for suppressing such interference might be needed. As such, Applicant respectfully submits that the PTO has failed to discharge initial burden of identifying any basis of record upon which to

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predicate the conclusion that one having ordinary skill in the art would have been realistically impelled to modify the double-balanced wide band RF mixer of Dobrovolny to arrive at the claimed invention, let alone doing so by using two radio frequency signals operating at different radio frequency bands. *In re Mayne*, 104 F.3d 1339, 41 USPQ2d 1451 (Fed. Cir. 1997). Thus, a *prima facie* case of obviousness has not been established using Irie.

D. Modification of Dobrovolny, Li and Irie Using Franca-Neto

With respect to Franca-Neto, it is respectfully submitted that the proposed combination relies on modifying *a modifying reference*, which is submitted to be too attenuated from the claimed invention to be considered obvious. Specifically, the Examiner first modifies Dobrovolny with Li to add a common node such that the alleged first and second transistors are coupled thereto. Then, Franca-Neto is introduced to modify Li so that the second transistor, which is coupled to the alleged common node of Li, when a local oscillator input signal is applied to the alleged first transistor, which is also coupled to the alleged common node of Li.

Although it is understood that there is no limit to the number of references that can be used in combination for rejecting a claim, it is submitted that a secondary reference cannot be used to reject the feature of another *secondary* reference. In the instant case, the Examiner modifies the coupling between the alleged first and second transistors as configured in Li with the teachings of another secondary reference Franca-Neto, rendering the proposed modifications non-obvious as being too far removed from the claimed invention (i.e., Examiner's need to

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modify a secondary reference to reach the claimed invention is itself an indicia of non-obviousness of the modification).

Lastly, similar to the reasonings set forth above with respect to Irie, the alleged motivation (i.e., "... in order to provide a highly linear and low voltage mixer") as asserted by the Examiner is completely *irrelevant* and *unrelated* to the double-balanced wide band RF mixer of Dobrovolny. As is apparent, Dobrovolny is directed to a double-balanced wide band mixer, and certainly does not disclose any need for a linear, low voltage mixer. Thus, Applicant respectfully submits that a *prima facie* case of obviousness has not been established using Franco-Neto.

E. Non-Analogous Art

It is noted that Dobrovolny and Li are respectively drawn to providing a double-balanced resistive mixer for high level wide band RF signals, and an unbalanced mixer capable of operation in absence of DC bias, while Irie and Franco-Neto are respectively directed to supplying a mixer circuit capable of suppressing an interfering wave by an image frequency and providing a linear low voltage mixer. Accordingly, it is submitted that the pertinent fields of art of each of Dobrovolny, Li, Irie and Franco-Neto are directed to different aims and have different functions. It is therefore submitted that the double-balanced resistive mixer of Dobrovolny, the unbalanced mixer of Li, the mixer circuit of Irie and voltage mixer of Franco-Neto are functionally non-analogous.

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In sum, it is respectfully submitted that the proposed modifications of Dobrovolny are improper because the Examiner has not provided the requisite *objective* evidence *from the prior art* that “suggests the desirability” of the proposed modification. At best, the Examiner has attempted to show only that the elements of the claimed invention are *individually* known without providing a *prima facie* showing of obviousness that the *combination* of elements recited in the claims is known or suggested in the art.

Accordingly, the Examiner's allegations, for example, that the alleged common node as disclosed in Li, different frequency bands as disclosed in Irie and the alleged interconnection circuit as disclosed in Franca-Neto are known *separately* is irrelevant to the determination of patentability for the *combination* of those features as recited in the pending claims. The Examiner is directed to M.P.E.P. § 2143.01 under the subsection entitled “Fact that the Claimed Invention is Within the Capabilities of One of Ordinary Skill in the Art is Not Sufficient by Itself to Establish *Prima Facie* Obviousness”, which sets forth the applicable standard:

A statement that modifications of the prior art to meet the claimed invention would have been [obvious] because the references relied upon teach that all aspects of the claimed invention were *individually* known in the art is *not* sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. (citing *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993)).

In the instant case, even assuming *arguendo* that the combination of Dobrovolny, Li, Irie and Franca-Neto “teach that all aspects of the claimed invention [are] individually known in the art,” it is submitted that such a conclusion “is not sufficient to establish a *prima facie* case of obviousness” because there is no *objective* reason on the record to modify the teachings of the cited prior art. In contrast, the asserted motivations set forth by the Office Action are based

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solely on hindsight reasoning using only Applicant's specification as a guideline for the combinations. It is respectfully submitted that only Applicant's specification provides the requisite rationale for the processes recited in the pending claims.

Accordingly, it is respectfully requested that the rejection of claim 13 under 35 U.S.C. § 103 be withdrawn.

With respect to claims 21 and 22, the Examiner has rejected the foregoing claims based on the same reasons set forth in the rejection to claim 13. Accordingly, Applicant respectfully submits that the reasons discussed above with respect to claim 13 are also applicable to the rejection of claims 21 and 22.

IV. **All Dependent Claims Are Allowable Because The Independent Claims From Which They Depend Are Allowable**

Under Federal Circuit guidelines, a dependent claim is neither anticipated nor rendered obvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as independent claims 13, 21 and 22 are patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also in condition for allowance.

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V. Conclusion

Accordingly, it is urged that the application is in condition for allowance, an indication of which is respectfully solicited.

If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicant's attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 06-1050 and please credit any excess fees to such deposit account.

Respectfully submitted,

Date: 9/15/05



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